Montana Clinical Communication & Surveillance Report

MONTANA
CARDIOVASCULAR HEALTH AND DIABETES PROGRAMS

Montana Department of Public Health and Human Services
Chronic Disease Prevention and Health Promotion Program
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CARDIOVASCULAR DISEASE (CVD) AND CVD RISK FACTORS AMONG MONTANA AMERICAN INDIANS WITH AND WITHOUT DISABILITY - 2003

WHAT'S INSIDE

BACKGROUND

Diabetes and cardiovascular disease (CVD), including stroke and myocardial infarction, are among the leading causes of death for American Indians in Montana and cause significant disability in the community.[1] In the first national survey of disability among American Indians and Alaska Natives conducted in association with the 2000 Census, functional limitations that "substantially limited one or more basic physical activities" were reported by 28% of those 45 years of age and older.[2] The high disability rates in the national sample ranged by age from 19% of those 45-49 years old to 67% of those aged 85 and older. Compared to non-disabled American Indians and Alaska Natives, those reporting disability to the United States Census were more likely to be poor, unemployed, and have less education, but no data were available on the actual causes of disability or the presence of chronic disease or cardiovascular risk factors in the disabled.

In Montana in 2003, a telephone survey of American Indians living on or near the reservations in Montana included questions which assessed both disability and CVD and risk factors for CVD.[3] The survey was adapted from the Behavioral Risk Factor Surveillance System Survey (BRFSS) and included a large sample of adult Indians. This report examines

the associations between self-reported cardiovascular disease and risk factors and disability assessed by self-reported limitations due to physical, mental or emotional problems.

METHODS

The Montana Department of Public Health and Human Services in collaboration with the Billings Area Indian Health Service conducted a random-digit dialing telephone survey among 1,000 adult Indians in Montana in 2003.[3] Trained interviewers made telephone calls to a random sample of households with three-digit telephone prefixes located on or near the seven reservations. The number of completed calls was proportional to the number of Indian households on each reservation. Based on the total number of Indian adults aged ≥18 years living in the household, one adult from the household was selected to participate.

Respondents were asked questions regarding their history of CVD and CVD risk factors including myocardial infarction, angina, stroke, diabetes, hypertension, high cholesterol, smoking, and overweight. Respondents who smoked cigarettes every day or some days were categorized as current smokers. Self-reported height and weight were used to determine each respondent's body mass index (BMI, kg/m2); those with BMI ≥30.0 kg/m2 were categorized as obese. Respondents were also asked two questions regarding their disability status. These included "Are you limited in any way in any activity because of physical, mental, or emotional problems?" and "Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed, or a special telephone?"

Response rates ranged from 97 – 100 percent across the items. Four persons who refused to provide their age were assigned the median age. Eight respondents did not know their height and one refused to provide that, so each was assigned a gender-specific median height. Four of these eight persons, along with 18 others did not know their weight, while 17 others refused to provide their weight; so each non-responder was assigned a gender- and height-specific median weight, so that BMI (kg/m2) could be calculated for all 1,000 cases. For all the dichotomous items, "Yes" responses were coded as 1, while "no" responses and the few "don't knows" or "refusals" were coded as 0. The analyses were conducted for men and women and younger (18-44 years) and older (≥45 years) respondents, as well as another critical CVD risk factor, the respondent's disability status. Mantel-Haenszel tests and common odds ratios (SPSS V14.0 SPSS Inc., Chicago, IL) were used to compare data from 219 and 781 American Indian adults with and without disability residing on or near Montana's seven reservations.

RESULTS

Overall, one-fifth (22%) of respondents reported being disabled. Twenty-one percent reported limitations in activities due to physical, mental or emotional problems, and 8% reported health problems that required the use of special equipment. Cardiovascular disease and CVD risk factors were prevalent among respondents: 11% reported a history of CVD, 16% diabetes, 34% high blood pressure, 22% high cholesterol, 36% were current smokers, and 38% were obese.

Respondents who reported a disability had a significantly greater prevalence of CVD (25% vs. 7%), diabetes (28% vs. 12%), high blood pressure (53% vs. 28%), high cholesterol (30% vs. 20%), and obesity (47% vs. 36%) compared to respondents who did not report a disability (Figure 1). There were no significant differences in the prevalence of current smoking among respondents with and without a disability (37% vs. 36%).

Among women, the prevalence of CVD, diabetes, high blood pressure, high cholesterol, and obesity was significantly higher in respondents who reported a disability compared to respondents who did not report a disability (Table 1). Among men, the prevalence of CVD, diabetes, and high blood pressure, was significantly higher in respondents who reported a disability compared to respondents who did not report a disability. Among respondents aged 18 to 44 years, the prevalence of CVD, diabetes, high blood pressure, current smoking, and high cholesterol, was signif-icantly higher in respondents who reported a disability compared to respondents who did not report a disability (Table 1). Among respondents 45 years of age and older, the prevalence of CVD, diabetes, and high blood pressure, was signif-icantly higher in respondents who reported a disability compared to respondents who did not report a disability.

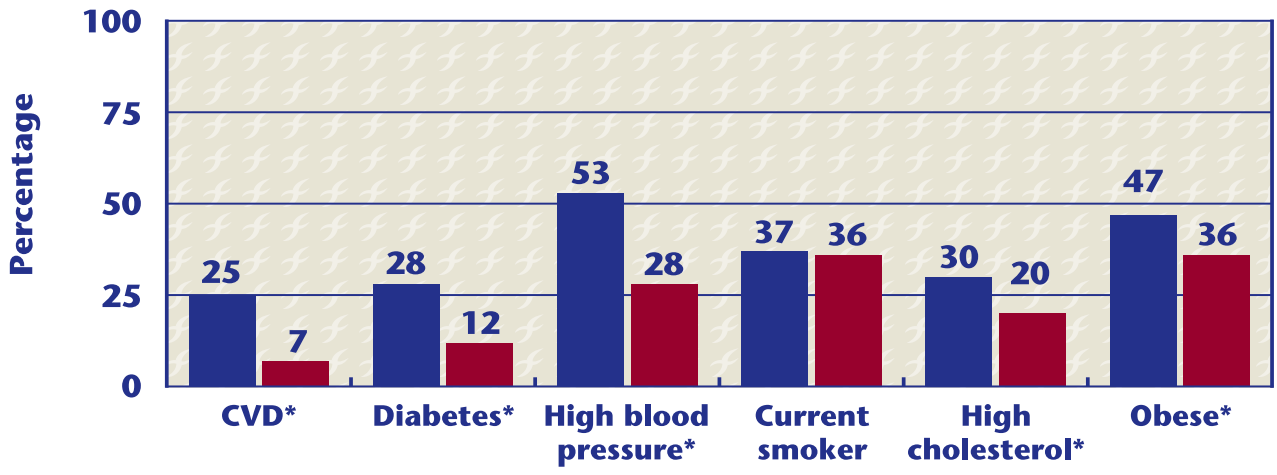
After adjusting for age and gender, respondents with disabilities were more likely to have CVD (odds ratio = 3.4), diabetes (2.1), and high blood pressure (2.3), and obesity (1.5) compared to respondents without disabilities (Table 2). Respondents with disabilities were also more likely than their non-disabled peers to have high cholesterol (1.2) and be current smokers (1.2), but these factor differences were not significant once gender and age were statistically controlled.

DISCUSSION

Our findings suggest that the prevalence of CVD and many CVD-related risk factors are higher in American Indian adults with disability compared to those without disability, overall, in men and women, and in younger and older adults. The prevalence of disability among American Indian adults is similar to what has been reported among Montana adults overall (20% in 2003).[4] Overall, Montanans who reported a disability had higher prevalence rates of obesity (28% vs. 16%), current smoking (24% vs. 16%), CVD (18% vs. 6%), high blood pressure (37% vs. 17%), high cholesterol (39% vs. 27%), and diabetes (11% vs. 4%) compared to persons reporting no disability.[4]

There are a number of limitations to these analyses. First, the surveys did not include Montana households without telephones, or American Indian households outside the seven reservations. Second, the information regarding CVD, CVD-related risk factors, and disability are self-reported and may be subject to recall bias.

Figure 1. Prevalence of CVD and CVD-related risk factors among American Indian adults with and without a disability, Montana, 2003.



CVD - includes heart attack, angina/coronary heart disease or stroke
Obese - Body Mass Index ≥30.0 kg/m²
*P ≤0.05

The higher prevalence of disability among persons with CVD and CVD-related risk factors, unfortunately is not surprising, given the high prevalence of complications and functional limitations associated with diabetes (e.g., retinopathy, neuropathy, lower extremity amputations), stroke, and myocardial infarction. The association between self-reported disability and a history of CVD is of particular concern because feelings of disability have been found to be a predictor of mortality among cardiac patients up to 8 years after a myocardial infarction.[5] Continued public health and clinical efforts will be needed to reduce modifiable CVD risk factors (e.g., regular physical activity, healthy diet, smoking cessation) among those with and without disability. Special effort will be needed to reach those with disabilities.

Table 1. The prevalence of CVD and CVD-related risk factors among American Indian adults with and without disability, by gender and by age, Montana, 2003.

	Gender				Age			
	Female (589)		Male (411)		18 to 44 (480)		45 or more (520)	
	Without Disability	With Disability	Without Disability	With Disability	Without Disability	With Disability	Without Disability	With Disability
Variable:	% (n)/452	% (n)/137	% (n)/329	% (n)/82	% (n)/419	% (n)/61	% (n)/362	% (n)/158
CVD	6 (25)	18 (25)*	9 (30)	37 (30)*	2 (8)	7 (4)*	13 (47)	32 (51)*
Diagnosed diabetes	12 (52)	30 (41)*	13 (44)	26 (21)*	5 (20)	13 (8)*	21 (76)	34 (54)*
High blood pressure	24 (110)	51 (70)*	33 (110)	55 (45)*	18 (74)	33 (20)*	40 (146)	60 (95)*
Current smoker	37 (168)	35 (48)	34 (113)	39 (32)	40 (168)	54 (33)*	31 (113)	30 (47)
High cholesterol	19 (86)	33 (45)*	21 (68)	26 (21)	10 (40)	18 (11)*	31 (114)	35 (55)
Obese (BMI $\geq$30.0 kg/m^2)	36 (164)	49 (67)*	36 (118)	43 (35)	34 (143)	46 (28)	38 (139)	47 (74)

*Significant disability effect, p $\leq$.05; Without Disability = 781, With Disability = 219.

Table 2. Gender and age adjusted risk (odds ratio) that being disabled has on CVD and CVD-related risk factors among American Indian adults, Montana, 2003.

Variable:	Beta Est. (standard error)	Sig*	Odds Ratio Est. (95% CI)
CVD	1.23 (0.22)	0.000	3.40 (2.21-5.25)
Diagnosed diabetes	0.74 (0.19)	0.000	2.10 (1.44-3.06)
High blood pressure	0.83 (0.17)	0.000	2.30 (1.66-3.18)
Current smoker	0.16 (0.16)	0.341	1.17 (0.85-1.61)
High cholesterol	0.27 (0.18)	0.133	1.31 (0.92-1.86)
Obese (BMI $\geq$30.0 kg/m^2)	0.39 (0.16)	0.016	1.48 (1.09-2.02)

*N = 1,000, two-sided test; the Mantel-Haenszel common odds ratio estimate is asymptotically normally distributed under the common odds ratio of 1.000 assumption; so is the natural log of the estimate (beta est.).

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REPORTED BY

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DIABETES PROFESSIONAL CONFERENCE – GROUSE MOUNTAIN LODGE, WHITEFISH, MONTANA, OCTOBER 19-20, 2006 SAVE THE DATE!

The Montana Diabetes Project's professional conference will be held on Thursday and Friday, October 19-20, 2006 in Whitefish, Montana at Grouse Mountain Lodge. This year's conference titled "Diabetes Care and Prevention: Working Together Under the Big Sky, 2006" will feature Dr. Aaron Vinik as the keynote speaker. For more information, contact Susan Day at (406) 444-6677 or e-mail sday@mt.gov.

CARDIOVASCULAR HEALTH SUMMIT – GROUSE MOUNTAIN LODGE, WHITEFISH, MONTANA, APRIL 13, 2007 SAVE THE DATE!

Mark your calendar for the 6th annual Cardiovascular Health Summit. The Montana Cardiovascular Health Program's professional conference will be held on Friday, April 13, 2007 at Grouse Mountain Lodge in Whitefish, Montana. For more information, contact Ann Bay at (406) 444-5508 or e-mail abay@mt.gov.

WHAT ARE THE MONTANA DIABETES PREVENTION AND CARDIOVASCULAR HEALTH PROGRAMS AND HOW CAN WE BE CONTACTED?

The Montana Diabetes Control and Cardiovascular Health Programs are funded through cooperative agreements with the Centers for Disease Control and Prevention, Division of Diabetes Translation (U32/CCU822743-03), the Division of Adult and Community Health (U50/CCU821287-04) and through the Montana Department of Public Health and Human Services.

The mission of the Diabetes Control and Cardiovascular Health Programs is to reduce the burden of diabetes and cardiovascular disease among Montanans. Our web pages can be accessed at http://ahec.msu.montana.edu/diabetes/default.htm and http://montanacardiovascular.state.mt.us.

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